

**ASSAY SYSTEM FOR SIMULTANEOUS DETECTION AND  
MEASUREMENT OF MULTIPLE MODIFIED CELLULAR PROTEINS**

**ABSTRACT OF THE DISCLOSURE**

A method and kit for simultaneous detection and/or determination of a plurality of modified proteins in a sample. The method comprises: a) contacting the sample under mild protein denaturation conditions with a plurality of first antibodies capable of binding to a specific target protein, the first antibodies being immobilized on solid support material, each first antibody being differentiable from others by a differentiation parameter, whereby the first antibodies bind to respective target proteins present in the sample; b) removing unbound materials from the locus of the first antibodies; c) contacting the materials from step (b) with one or more second antibodies, each of which is specific to a class or subclass of modified proteins or with a plurality of second antibodies, each of which is specific to a modified protein, so as to bind the second antibody or antibodies to modified proteins in the sample; and d) detecting and/or determining a plurality of modified proteins in the sample.

The kit comprises a plurality of primary antibodies immobilized on the above-mentioned solid support material, one or more buffers for lysing and for washing cellular material samples to be assayed, an assay buffer for conducting the assay, the buffer containing a sulfate or sulfonate detergent, and one or more second antibodies specific to the modified proteins.

Also disclosed is a process for mild denaturation of modified proteins for use in such a procedure.

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